

NDCS AND WATER – IMPLEMENTING THE PARIS AGREEMENT

Preparing to Adapt: The Untold Story of Water in Climate Change Adaptation Processes

Emerging insights from GWP's analysis of 80 NDCs from a water perspective, in conjunction with the UN's 2018 progress report on implementing the Sustainable Development Goal on Water (SDG 6)

Actions to adapt to climate change urgently need more attention: What can countries do – better, faster, with broader ownership, and longer-lasting impact – to build real resilience?

We invite the climate community to look to the water community for inspiration. This report presents emerging insights from an in-depth analysis that the Global Water Partnership undertook of the adaptation components of 80 Nationally Determined Contributions (NDCs).

We sought to understand country priorities in terms of water-related adaptation – and compared these priorities with insights and advice from the United Nations 2018 progress report on implementing the Sustainable Development Goal on Water (SDG 6). We looked at alignments with national development planning processes and coordination across governments.

Importantly for water, we investigated whether countries intended to invest not only in infrastructure but also in getting *the necessary management and governance structures* in place to manage water under the increased variability, reduced predictability, more frequent and intense extreme events, and new hydrological regimes associated with a changing climate. We also looked at countries seeking to take water-related climate actions via an approach of *integrated* water resources management – the approach recommended globally and through SDG 6.5.1 for ensuring efficient, sustainable, and inclusive water outcomes.

While more analysis is needed to better understand the drivers behind individual countries' decisions, the emerging insights presented here indicate that there are significant benefits in 'marrying' climate change coordination with good practice established for water management in terms of inclusion and multi-stakeholder consultation. We also point to the urgent need – for countries and their development partners – to bring together institutional strengthening and water governance with more detailed design for projects and programmes and a major drive towards infrastructure investment in the years to come.

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About GWP

The Global Water Partnership’s vision is for a water secure world. Our mission is to advance governance and management of water resources for sustainable and equitable development. The Network has 13 Regional Water Partnerships, 63 Country Water Partnerships, and over 3,000 Partners located in 183 countries.

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Introduction

We see from the Intergovernmental Panel on Climate Change (IPCC) reports that the world is heading in the wrong direction, with severe impacts of rising global temperatures arriving sooner than expected. Already, over the past decade, communities around the world experienced record-breaking water-related extremes – floods, droughts, storms, and coral bleaching – as a consequence of average global temperatures rising by 1°C above pre-industrial levels.

Global warming is expected to reach 1.5°C between 2030 and 2052. These rising temperatures, and accompanying hydroclimatic phenomena such as changes in precipitation and snowmelt, will lead to disrupted water supplies and amplified flood and drought disasters – impacts that will be felt across communities, ecosystems, and economies. Countries and communities that are exposed to these risks but have not invested in good water management and governance will suffer the most.

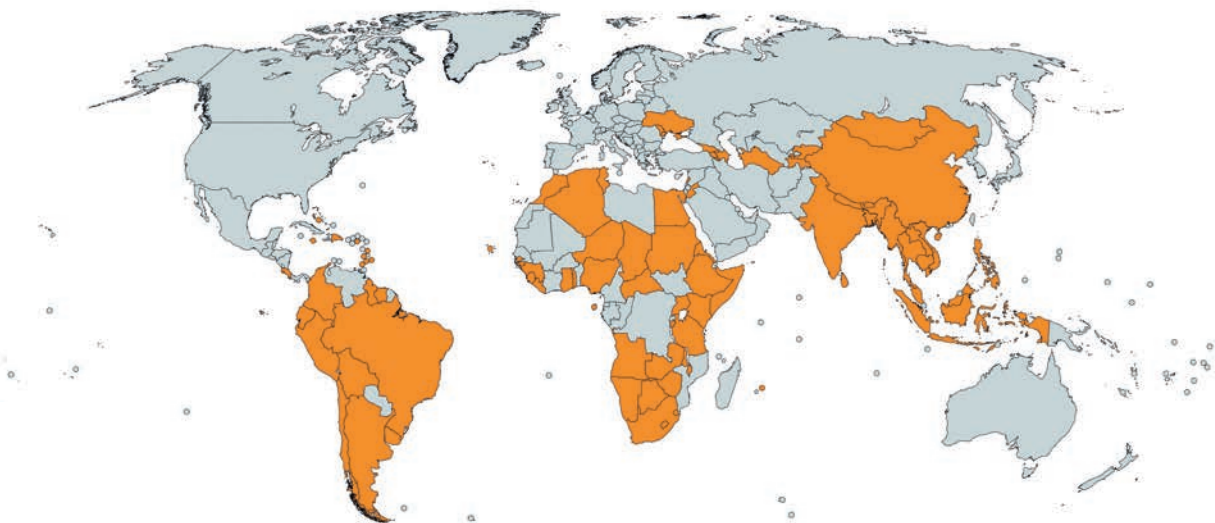
In 2018, through the Talanoa Dialogue, Parties to the United Nations Framework Convention on Climate Change (UNFCCC) are taking stock of collective efforts towards the goals of the Paris Agreement to inform the preparation of the next round of Nationally Determined Contributions (NDCs). This first stocktaking of the NDCs provides a tremendous opportunity for

countries to assess what they can do – better, faster, with broader ownership, and longer-lasting impact – to build climate resilience. The Global Water Partnership (GWP) seeks to inform this process, as countries shape their ambitions on improving effectiveness of NDC delivery and scaling up NDC action, by presenting emerging insights from an analysis of water-specific commitments in the NDCs of 80 countries (Figure 1).

Updated NDCs are due by the 26th Conference of the Parties to the UNFCCC, in late 2020. Guided by its analysis, GWP and partners will work over the next two years with interested countries and groups in helping with these updates, reflecting the urgency to address water *management* in a systematic and country-specific way. In doing so, we will draw on the existing work of GWP Country Water Partnerships and Regional Water Partnerships to support governments and multi-stakeholder groups as part of the National Adaptation Plan (NAP) and SDG implementation processes. Annex 1 shows linkages among NDCs, NAPs and SDGs.

In this document, we present some of the emerging insights from our work that feed into the Talanoa Dialogue process and its follow-up, and guide GWP's work helping countries to update their Nationally Determined Contributions for 2020. We will release more in-depth analyses mid-2019.

Figure 1. 80 countries were included in the Global Water Partnership's analysis of Nationally Determined Contributions



Source: GWP, 2018 (some countries have GWP Country Water Partnerships)

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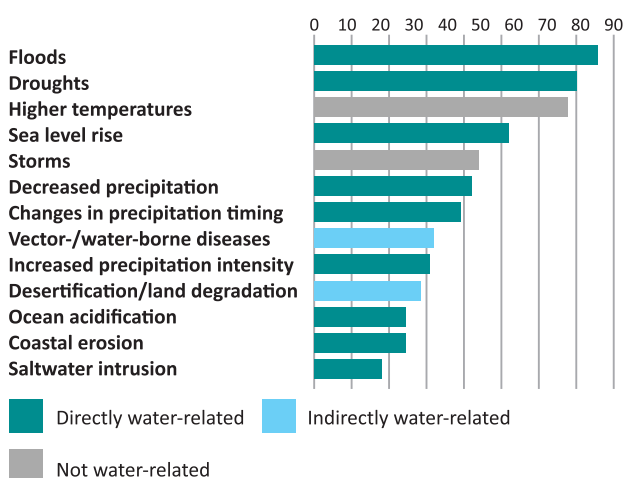
Adapting to an uncertain future: 9 out of 10 countries take action on water

1.1 Water is to adaptation what energy is to mitigation.¹ Climate scientists pointed to this insight years ago, and it is clearly reflected in how governments understand their countries' climate risks: identifying water and water-related sectors both as key climate hazards and as the main adaptation options.² The concerns voiced about climate change *impacts* – seen through the lens of Nationally Determined Contributions – speak primarily of extreme events in terms of floods and droughts, long-term increases and decreases in average precipitation,

increased seasonal and interannual precipitation variability, coastal erosion, and saltwater intrusion (Figure 2). Faced with these increasingly severe water-related climate risks, it is not surprising to see that countries are identifying water in their lists of priority adaptation actions and in a range of areas in which water plays an integral role (Figure 3).

1.2 Smart integration of specific water actions features in most NDCs. Our analysis of 80 NDCs reveals the degree of careful planning and consideration that is going into defining 'water actions' in each country. Not only is investing in water infrastructure, institutions, or governance a key climate action priority in 89% of the surveyed countries, but also practically all countries indicate some kind of water action as necessary for adaptation. Of the individual water actions planned for adaptation (Figure 4), more than 70% specifically involve some form of management instrument and governance, while 63% note the need for general water resources management. However, a more careful look into the specific actions proposed also indicates that some 'no regret' options, such as investment in groundwater management, may not have been given the attention they deserve.

Figure 2. Key climate hazards identified in the adaptation components of NDCs
(number of countries referring to a hazard)

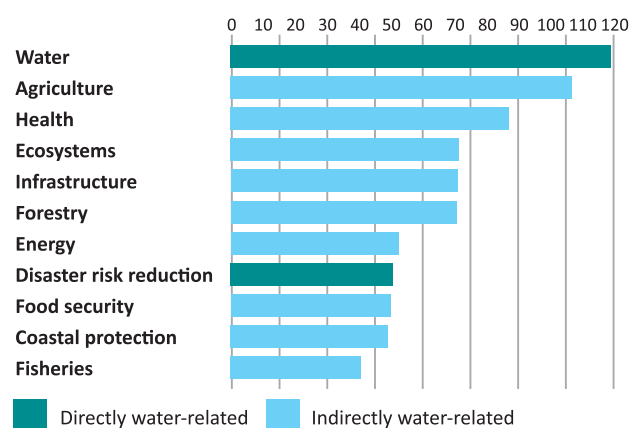


Source: UNFCCC, 2016, 137 countries. Categorisation into Directly water-related, Indirectly water-related, and Not water-related done by GWP.

¹ World Bank, 2016.

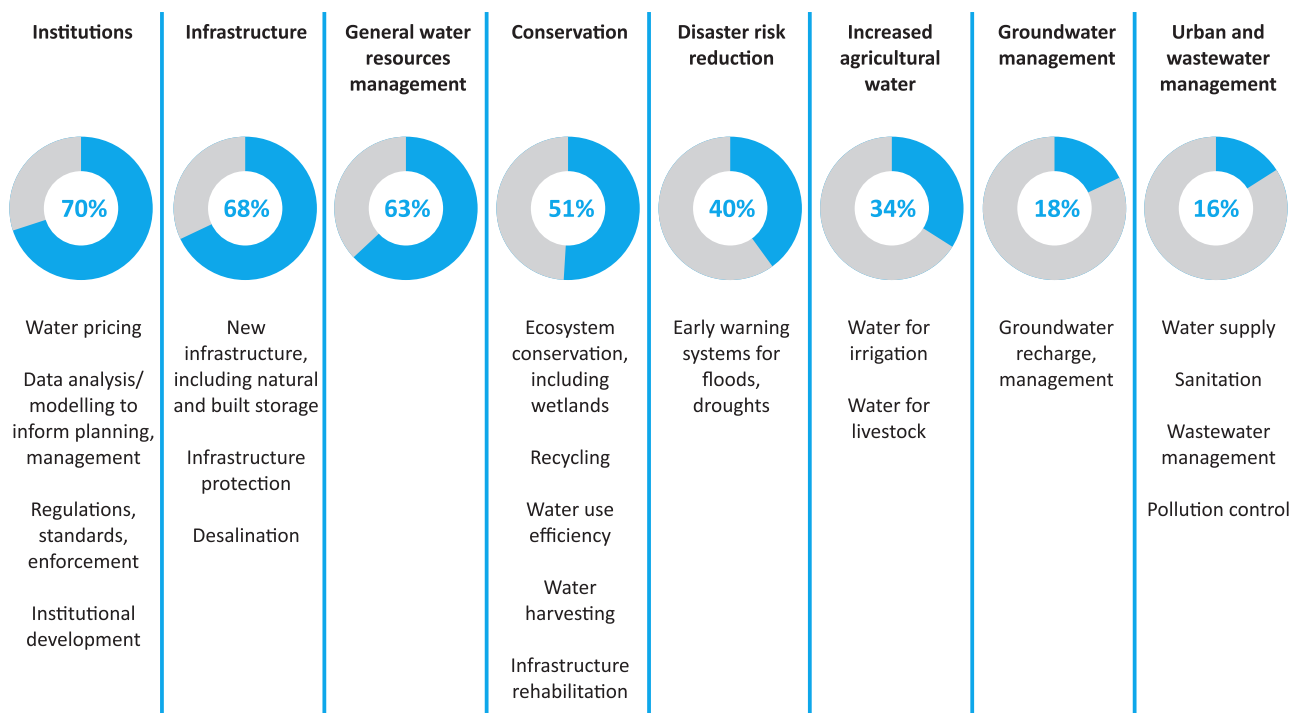
² UNFCCC, 2016.

Figure 3. Priority areas and sectors for adaptation actions in NDCs
(number of countries referring to area or sector)



Source: UNFCCC, 2016, 137 countries. Categorisation into Directly water-related, Indirectly water-related, and Not water-related done by GWP.

Figure 4. Prioritised water actions for adaptation in NDCs



Source: GWP, 2018

2

Water infrastructure and water institutions: do they go hand in hand?

2.1 Even without climate change, the world is not on track to ensure a secure and sustainable water supply for all.³ Billions of people lack safe water, sanitation, and handwashing facilities. In the meantime, water pollution is worsening, profoundly affecting the quality and amount of water available to meet human needs and sustain

ecosystems. Ecosystems and their services, water included, are in continuous decline, with profound impacts on economic development and social and environmental stability. Agriculture continues to place enormous stress on water, as does a growing population and changing lifestyle patterns. On the flip side, agriculture could be part of a water-saving solution – in some basins, reducing just a fraction of agricultural withdrawals would significantly alleviate water stress in other sectors.

The world is not managing water well or making the most of it, due above all to failure of policies, governance, leadership, and markets.⁴ Limitations on our capacity to manage these challenges are worrisome: governance structures for water management are weak and fragmented, and political, institutional, and administrative rules, practices and processes are inadequate in many countries, particularly those where pressures on water resources are greatest.

³ UN Environment, 2018.

⁴ NCE, 2018.

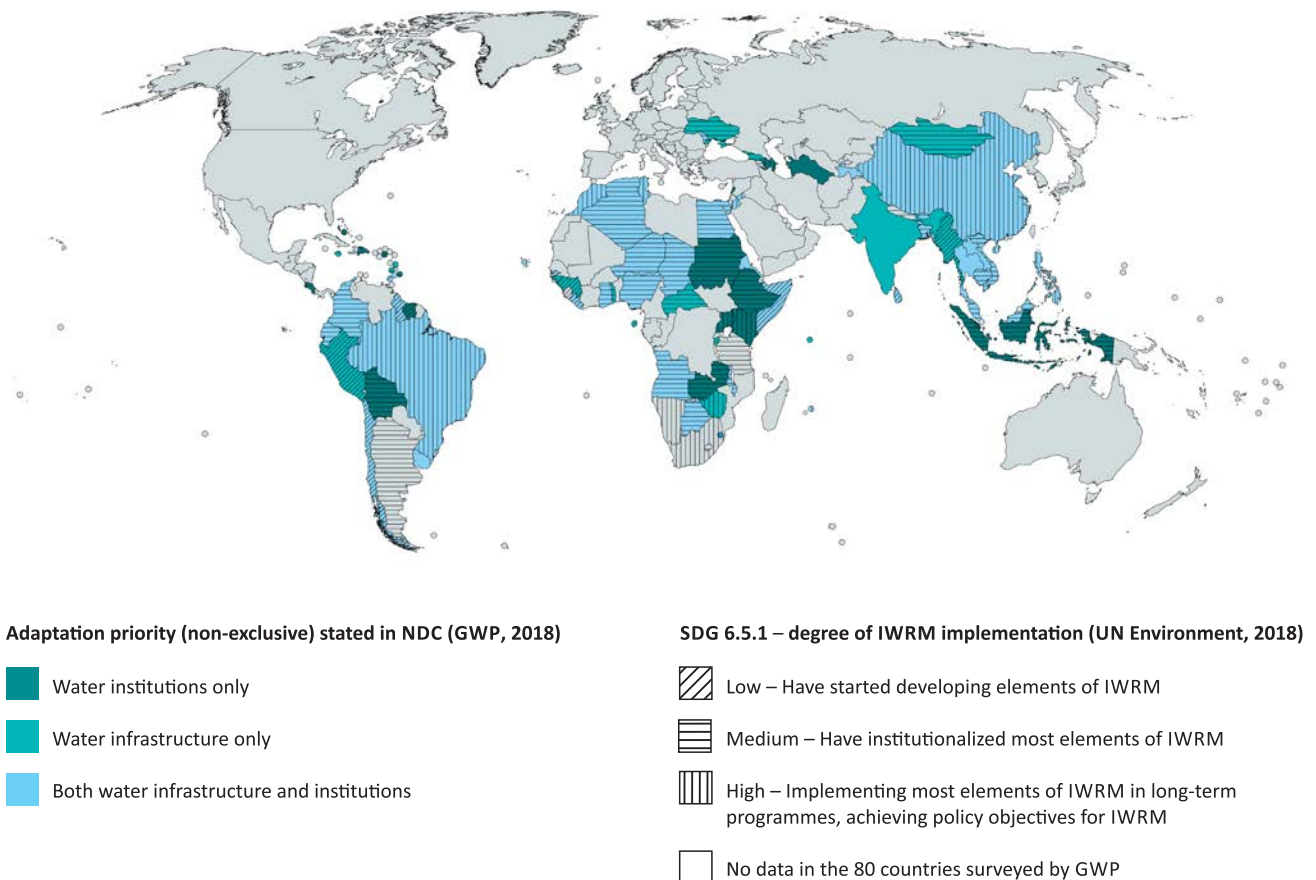
A serious lack of institutional and human capacity around water management is therefore constraining progress, particularly in the least developed countries.

2.2 Most countries – some among the poorest – prioritise some form of water management and institution building in their NDCs.

The water community has, over the past 20 years or so, concluded that investing in water infrastructure without investing in the necessary management and governance environment, institutions and tools leads to non-sustainable, inefficient, and often exclusionary solutions. It is encouraging to see that most countries – irrespective of their income group – plan to address both infrastructure and management structures under their NDC priorities.

Close to half (49%) of the 80 NDCs reviewed seek to invest in both water infrastructure and some kind of institutional strengthening for adaptation; a much smaller share (19%) prioritise water infrastructure investments without noting the need to strengthen water-related management and institutions (Figure 5). A more detailed analysis is required to understand if the proposed approaches for water management and governance are strong enough for water infrastructure investments to be sustainable, efficient, inclusive, and impactful in terms of building climate resilience.

Figure 5. Prioritisation of water infrastructure only, water institutions only, or both water infrastructure and institutions in NDCs by countries, and current levels of IWRM implementation



Source: GWP, 2018; UN Environment, 2018

2.3 The mix of priorities are country specific and relate to country development pathways. A more careful look across the countries' economic profiles offers some insight into what may drive decisions that prioritise water interventions described in the NDCs.⁵ A few countries with very high poverty rates prioritise institutions only; others with comparable poverty rates look to work on both water infrastructure and water institutions (Figure 6).

Water actions that build resilience are typically context-driven, whether this relates to establishing decision-support and early warning systems, putting in place flexible policy and legal instruments that can provide fair water allocations in shifting hydrological regimes, or preparing basin-scale, resilience-targeted investment plans. Where countries with high poverty rates prioritise water infrastructure but

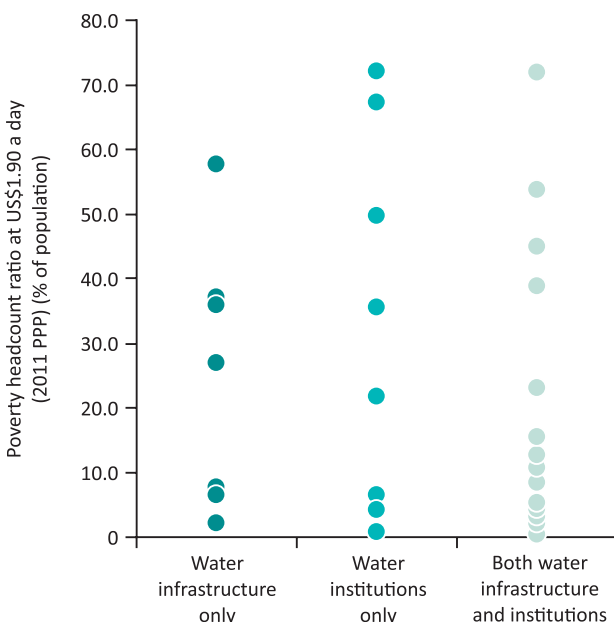
not the requisite institutions in their NDCs, this may be because they are already engaged in or well advanced in embedding an integrated approach to water resources management: Zambia is a case in point. In other cases, it may be worthwhile exploring whether planned infrastructure investments could open up opportunities for long-needed institutional strengthening, thereby ensuring that the most vulnerable populations are able to adapt to climate change and that assets created are not left stranded.

3

Only a few countries refer explicitly to water management approaches that are truly integrated

3.1 Integrating management approaches across water and water-related sectors is key for long-term success. The water community has long debated the best choices, formats, and timing for implementing water resources *management* and *governance*. Countries at different stages of socio-economic and infrastructure evolution have different needs and capabilities and it is essential to reflect this in the approach taken for managing water resources – i.e. implementing different instruments gradually and in a nuanced format rather than moving for wholesale adoption.⁶

Figure 6. Poverty ratio across countries prioritising water infrastructure only, water institutions only, or both water infrastructure and institutions in NDCs



Source: GWP, 2018; World Bank, LAV 2010–2015

⁵ Limits to the GWP analysis: The analysis of water-related priorities in 80 NDCs undertaken by GWP only considers the statements made in the NDCs documents. The larger context of pre-existing IWRM efforts that may have guided the definition of the water actions in the NDCs has not been analysed. A detailed, country-by-country analysis will be required to provide more nuanced insights on the rationale followed for prioritising water-related actions and IWRM.

⁶ GWP, 2016.

There is broad agreement that *integrated* approaches are necessary for achieving long-term solutions – and this certainly applies to water-related actions to build climate resilience (Box 2). Existing frameworks on indicative priorities can guide implementation of such integrated approaches. In fact, Sustainable Development Goal 6 – aiming for access to safe and sustainable water and sanitation – explicitly defines a target (6.5.1) stipulating ‘integrated water resources management’ (IWRM) as the pathway towards a water-secure world.

The United Nations 2018 SDG 6 progress report notes that integration across water and water using sectors with intersectoral policy-making structures (across several ministries) and effective transboundary governance frameworks is essential to ensure that limited water resources are shared effectively among many competing demands.⁷ However, the progress report finds, alarmingly, that 60% of 172 of the countries reviewed find themselves to be only in incipient stages of implementing an IWRM approach (Figure 7). These countries are unlikely to meet their SDG 6 targets unless progress accelerates on institutionalising and implementing water management through integrated approaches. Many of the very same countries have formulated priorities for climate change adaptation through their NDCs that involve investing in water-related interventions and infrastructure; this needs more attention.

Box 1. Integrated Water Resources Management (IWRM)

Integrated water resources management is a process which promotes the coordinated development and management of water, land, and related resources in order to maximise economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems and the environment.

Source: GWP, 2000

Box 2. Water security, climate adaptation, and IWRM

Building climate resilience through improved water security requires investment in the three Is: better and more accessible *Information*, stronger and more adaptable *Institutions*, and natural and man-made *Infrastructure* to store, transport, and treat water. These needs will manifest at all levels – in projects, communities, nations, river basins and globally. Balancing and sequencing a mix of ‘soft’ (institutional and capacity) and ‘hard’ (infrastructure) investment responses will be complex, requiring information, consultation and adaptive management.

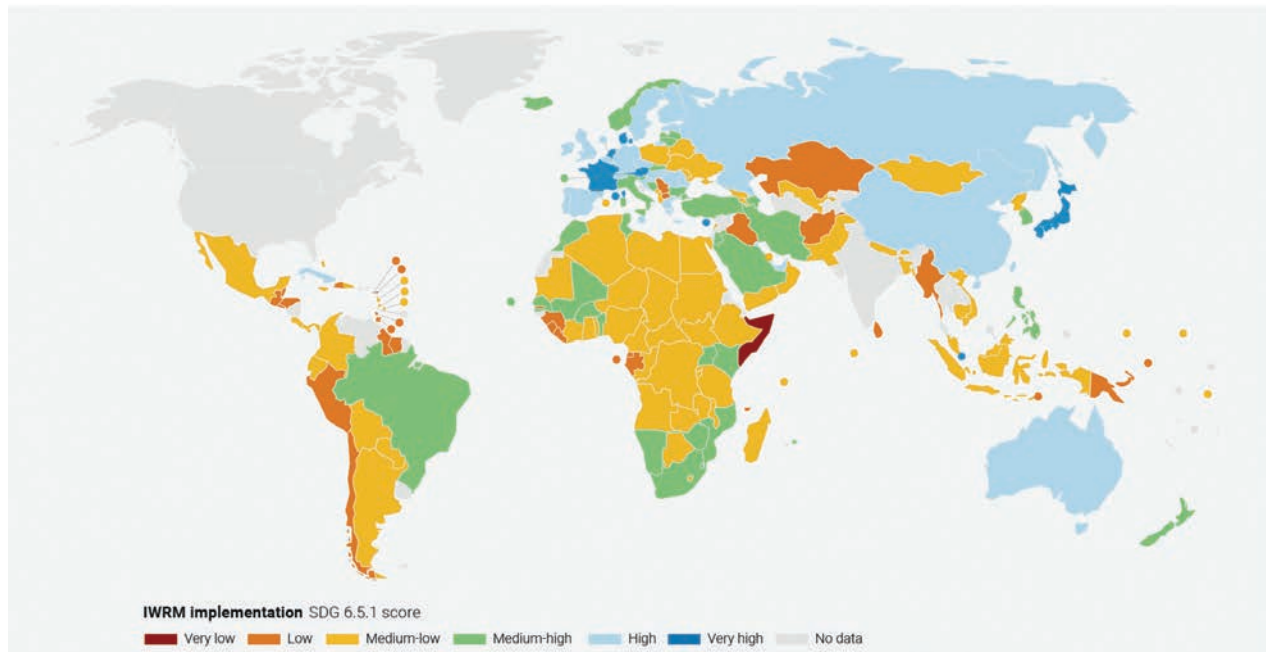
Furthermore, tough trade-offs are likely to be unavoidable in balancing equity, environmental and economic priorities. Finding the right mix of the three Is (information, institutions and infrastructure) to achieve the desired balance between the three Es (equity, environment and economics), will be the ‘art of adaptation’ in water management.

Integrated water resources management is an approach for managing these dynamics and a thread that can run through the different levels of engagement. The approach represents global good practice of water management: it recognises the holistic nature of the water cycle and the importance of managing trade-offs within it; it emphasises the importance of effective institutions; and it is inherently adaptive.

Source: Sadoff and Muller (GWP), 2009

⁷ UN Environment, 2018.

Figure 7. Country IWRM implementation levels

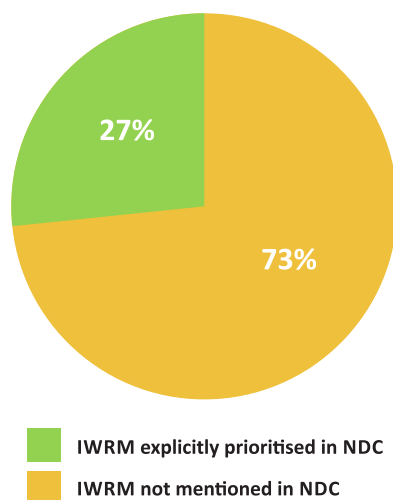


Source: UN Environment, 2018

3.2 In their NDCs, only a quarter of countries planning for water-related adaptation explicitly refer to taking an integrated approach across sectors and levels (Figure 8). In fact, among countries that the United Nations 2018 SDG 6 progress report noted were weakest in implementing integrated water management approaches, a mere 10% explicitly aim to adopt an integrated approach in their water adaptation agenda

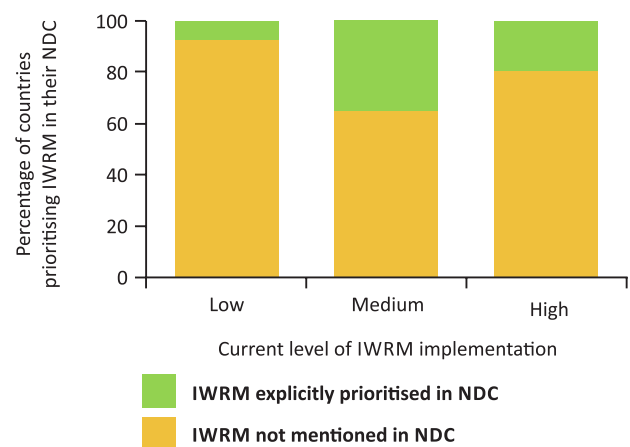
(Figure 9).⁸ In a situation where countries are overwhelmingly prioritising investments in water for adaptation, the reasons behind this lack of integration need to be better understood. Why is there little explicit commitment to integrated approaches? What drives the countries that explicitly mention IWRM? What are the instruments they are looking to implement? And is the lack of integration intentional or simply an oversight?

Figure 8. Percentage of countries explicitly prioritising IWRM in their NDC



Source: GWP, 2018

Figure 9. Differences in prioritisation of IWRM in NDCs against country IWRM implementation levels

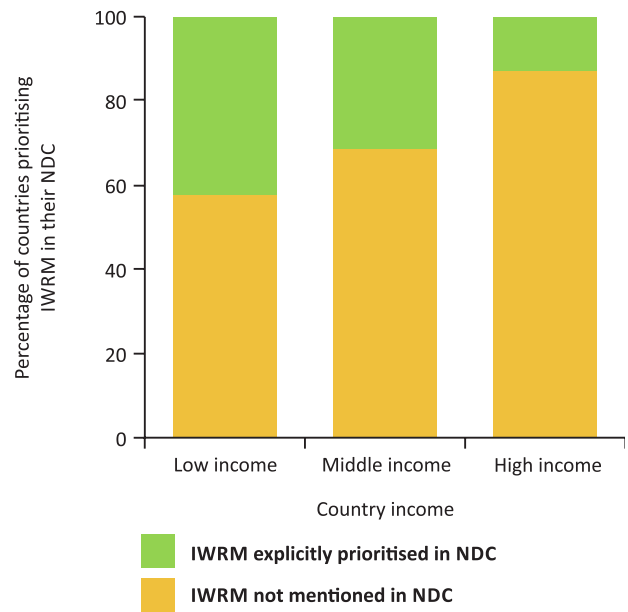


Source: GWP, 2018; UN Environment, 2018

⁸ The United Nations 2018 SDG 6 progress report categorises countries across different levels of implementation: Very high and High – achieving policy objectives for IWRM; Medium-high – implementing most elements of IWRM in long-term programmes; Medium-low – institutionalising most elements of IWRM; and Low and Very low – starting to develop elements of IWRM. This report simplifies the categorisation of IWRM implementation levels as follows: Low – combining Low and Very low; Medium – Medium-low; and High – combining Medium-high, High and Very high.

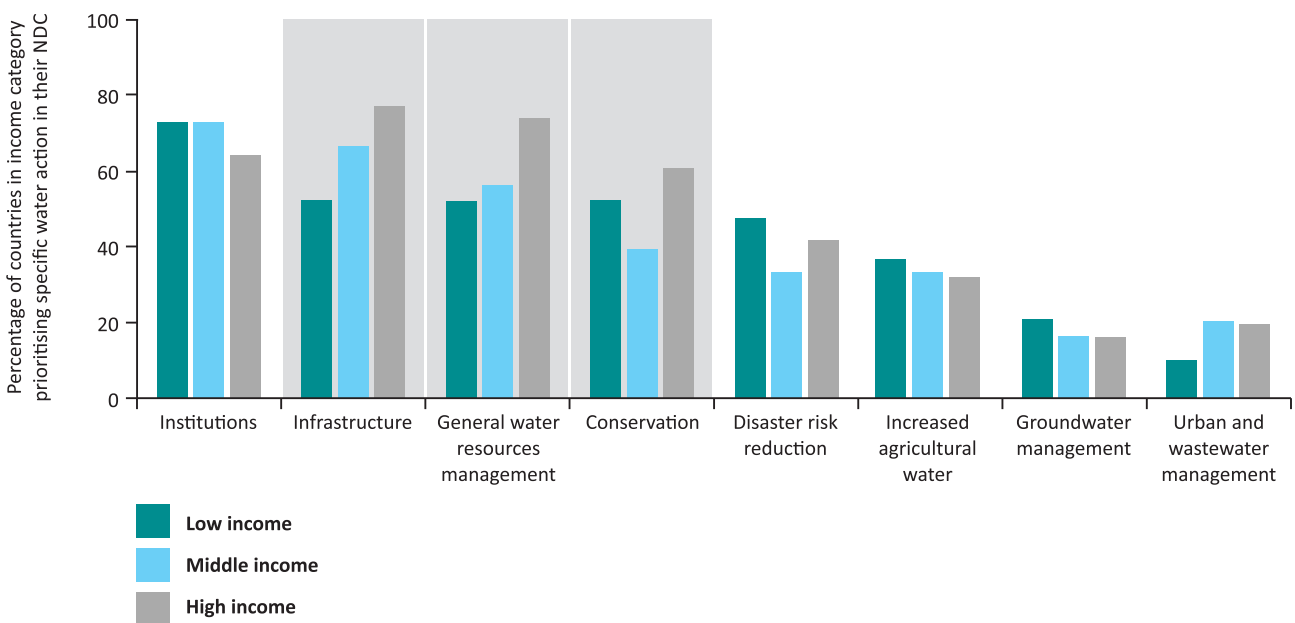
3.3 It is the poorest countries which more often explicitly refer to comprehensive institutional strengthening – such as through integrated water resources management. More than 40% of low-income countries prioritise integrated water resources management in their NDCs – in comparison with just over 30% in the lower middle-income group, (Figure 10). Poorer countries, more reliant on rainfed or irrigation-dependent agriculture and livestock, call for increased water for agriculture, developing management instruments and governance mechanisms, and increased action on disaster risk reduction – all of which stand to benefit from deploying IWRM approaches. Richer countries call for more infrastructure and water resources management for adaptation, and less so for IWRM priorities (Figure 11). Their intent to invest more into water conservation as well as groundwater and wastewater management may reflect better pre-existing institutional frameworks or a long history of investment in water infrastructure.

Figure 10. Differences in prioritisation of IWRM in NDCs against country income levels



Source: GWP, 2018; World Bank, 2018

Figure 11. Differences in the types of water actions prioritised in NDCs against country income levels: biggest differences in Infrastructure, General water resources management, and Conservation



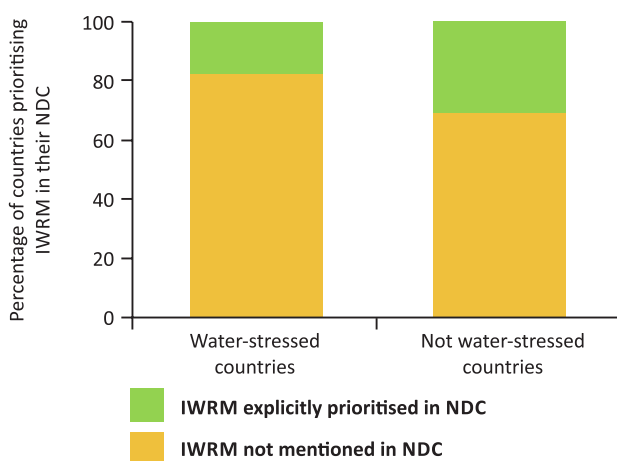
Source: World Bank, 2018; GWP, 2018

3.4 Some highly water-stressed countries, which could stand to benefit from an integrated water management approach, do not refer to IWRM in their NDCs.

A large majority (over 80%) of water-stressed countries in the sample do not prioritise integrated water resources management – the approach of choice promoted by the SDG process and others for coordinating water use and water interventions (Figure 12). Countries under water stress operate with an imperative for water security under limited availability of renewable water, often struggling to put effective measures in place. Such measures include managing water demand as well as producing more from each drop of water, making water allocation more efficient and fair, and offering incentives that reflect the value of water and encourage wise use.

Of those water-stressed countries not mentioning IWRM in their NDCs, 92% have reported low and medium-low levels of IWRM implementation in the United Nations 2018 SDG 6 progress report. For these highly water-stressed countries, it would be important to consider including water management and governance priorities in national development plans, in addition to infrastructure priorities; an emphasis on infrastructure without accompanying management and governance is unlikely to be enough to deal with water stress.

Figure 12. Differences in prioritisation of IWRM in NDCs against water stress



Source: GWP, 2018; FAO, 2016

4

The NDC process brings a high level of integration across sectors – the water sector can help further

4.1 The NDC process often achieves good cross-sectoral coordination through alignment with national development planning processes. Comparing the country-specific NDCs with other national development plans and instruments used in each country, our analysis found that NDCs are broadly aligned with national development processes in 90% of countries; in many cases these are Sustainable Development Plans, and some cover the green economy specifically. Adaptation planning processes are well underway in 88% of countries, either through a distinct national adaptation planning processes or as part of national climate change strategies. The degree to which the NDC preparation process involves cross-ministerial and cross-agency collaboration in governments, including consultation processes with civil society, the business sector, and academic and research institutions, holds promise for future implementation – in particular with regard to water-specific interventions.

4.2 Water-specific cross-sectoral integration mechanisms can further solidify coordination for national adaptation planning. Nearly half of the countries analysed already have a specific water plan or statement that they use for adaptation planning – and 16% indicate in their NDCs an intention to prepare a water plan. Droughts and floods manifest climate change impacts in a visible way and can be a powerful catalyser for fostering further political commitment and bringing sectors and stakeholders together to solve common challenges.

Table 1. NDCs, water and national development planning

NDCs and national water planning	% of countries
NDCs aligned with national development plans and strategies	90
Adaptation plan current or underway (National Adaptation Plan (NAP), National Adaptation Programme of Action (NAPA), or other national level adaptation planning processes)	88
Coordinated and inclusive approach to intended NDC preparation clearly stated	75
Specific water policy statement or plan	44
Intention to prepare specific water plan	16

Source: GWP, 2018

5

The NDC process provides an opportunity to unveil co-benefits for mitigation through water investments

5.1 Water-related adaptation actions, when done smartly and in coordination with other sectors, can deliver important mitigation outcomes.⁹ Beyond the obvious connection between adaptation-driven water actions and development outcomes, be they in poverty reduction, improved health outcomes or economic growth, sound water management activities can also provide important and often overlooked co-benefits for climate *mitigation*. The water–energy–food–environment nexus is helpful to understand this dimension. Examples of water-conserving interventions that also contribute to climate change mitigation include forestry management and agroforestry techniques, agricultural ‘good practices’ that conserve soil and water resources, and properly scaled bioenergy projects for rural communities.

Taking water as an entry point to examine what are typical adaptation measures through a cross-sectoral lens can help identify such co-benefits and ensure mitigation opportunities offered by water. The connection is obvious where hydropower provides an alternative to greenhouse gas-inducing fossil fuel emissions or irrigation from a flood control reservoir can supplant energy-intensive groundwater pumping. But there are other dimensions, too. Wetland restoration as an adaptation option, by providing natural surface water storage, groundwater recharge, and flood control can result in improved water quality,

⁹ IPCC, 2018.

thereby offsetting while also reducing the need for energy that would otherwise be required to provide safe water. Similarly, small water retention measures that support flood management and reduce drought impact deliver carbon-neutral water filtration.¹⁰ Afforestation and reforestation, promoted for watershed management, yields valuable mitigation effects. Likewise, an integrated approach, including sustainable land management for agriculture, with wetlands management, for example, for carbon sequestration, can work in synergy with mitigation policies.

Important linkages emerge wherever water interventions have an energy consumption dimension, specifically also in urban contexts: wastewater treatment, water treatment, purification, desalination,¹¹ and irrigation. Mainstreaming consideration of potential mitigation co-benefits across the entire value chain of an adaptation-focused water resources investment (which could cut across energy, land, urban, and infrastructure, among others) is an urgently needed paradigm shift, and additional exploration of the NDCs could shed light on countries that are already undertaking this approach. Further research may be needed to estimate the extent of mitigation co-benefits more specifically – also because the mitigation dimension may help in placing a monetary value on interventions and thus enable financing.

5.2 **The water community offers tried and tested mechanisms for mobilising multi-stakeholder views to assess and decide upon trade-offs between climate change mitigation and the SDGs.** Across the range of Sustainable Development Goals, water stands out in terms of large synergies with, as well as trade-offs between, development and mitigation in regard to all three mitigation strands: managing energy supply, managing energy demand, and land management (Figure 13). In particular where trade-offs are concerned, it is imperative that the voices of stakeholders are heard in mitigation choices. The water management community has come a long way on this: in the context of integrated water resources management, most countries have established multi-stakeholder platforms that can be mobilised where complex problems need to be solved and tough decisions taken. Integrating decision-making across multiple sectors, designing inclusive processes, and considering synergies and trade-offs has been practised in water management for years.

¹⁰ GWP CEE, 2015.

¹¹ Some projects exist, notably the construction of the Golden Century Lake in Turkmenistan to collect water which will then require desalination.

Figure 13. Indicative linkages between mitigation options and sustainable development using Sustainable Development Goals (SDGs) (The linkages do not show costs and benefits)

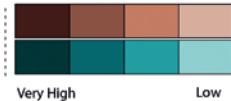
Mitigation options deployed in each sector can be associated with potential positive effects (synergies) or negative effects (trade-offs) with the Sustainable Development Goals (SDGs). The degree to which this potential is realized will depend on the selected portfolio of mitigation options, mitigation policy design, and local circumstances and context. Particularly in the energy-demand sector, the potential for synergies is larger than for trade-offs. The bars group individually assessed options by level of confidence and take into account the relative strength of the assessed mitigation-SDG connections.

Length shows strength of connection



The overall size of the coloured bars depict the relative potential for synergies and trade-offs between the sectoral mitigation options and the SDGs.

Shades show level of confidence



The shades depict the level of confidence of the assessed potential for Trade-offs/Synergies.



Source: IPCC, 2018; Grey shade on SDG 6 added by GWP

6

Finding financing first – designing projects later: will this work?

6.1 NDCs are a powerful tool to engage with financing partners on country priorities. In the context of the global financing landscape, the NDCs can help countries initiate conversations with financing partners, pointing them to investment needs in addressing climate risks. The urgency associated with adaptation actions is important to financial institutions looking for partners that take investment plans seriously. Through their NDCs, many developing countries have noted external financing as a precondition to achieving adaptation commitments. Many also express specific demand for support beyond financing – in technical assistance or coordination support.

6.2 A strong financial appetite for water interventions comes with few details on projects and weak progress on building institutional environments for managing water. Our analysis looked at incremental and project-based plans for investments in water. Of the countries studied, 69% had a broad profile of proposals for future action on water. However, very few (10%) had detailed project proposals that could then be turned readily into implementable projects (Figure 14).

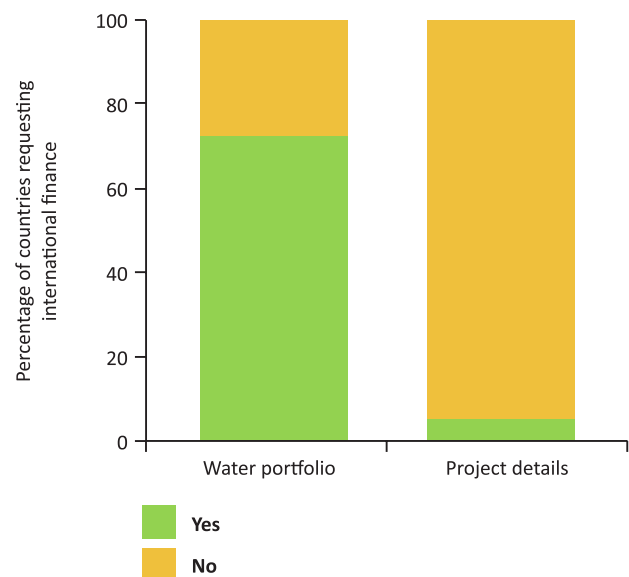
Countries note in their NDCs that access to finance is a constraint, and they recognise that this is partly because of their weak capacity for project preparation and promotion. Of countries that have requested external financing, 72% have a water portfolio (anything ranging from a list of water investments to a fully-

Table 2. State of proposed actions on water in NDCs

	% of countries
Portfolio of actions on water	69
Detailed project proposals	10
Requests for international support (finance, technology development and capacity building)	86
Domestic contributions underway or planned	74
Costs of adaptation actions estimated (total or specific to water)	44

Source: GWP, 2018

Figure 14. Percentage of countries requesting international finance for NDC implementation that have water portfolios or project details ready



Source: GWP, 2018

fledged investment plan), but only 4% have developed actual project details. Among the countries that request international support and have no project details, 80% have been assessed as 'medium-low' or 'low' in terms of progress made in the implementation of IWRM. For countries requesting international support, it would

be prudent to consider interventions that would also lead to appropriate strengthening of management and governance structures for water – thereby increasing the likelihood that financing, when secured, can result in tangible projects and that projects will be successful in the long term.

Many developing finance partners may even require such institutional strengthening, and their role in attracting concessional or private sources of financing is critical.¹² As an important first step, working to strengthen embedded capacity for designing and managing specific projects would mean filling a specific and significant gap. This kind of support could help countries more easily access financing that is available for adaptation.

6.3 Addressing the appetite–design gap: GWP’s experience shows the need to foster continued collaboration by agencies involved in water-related adaptation projects. Aligned to the emerging findings of our NDC analysis, GWP, with individual countries and partners, launched in mid-2018 the Project Preparation Partnership for Climate Resilient Water Projects in Africa and Asia. This Partnership provides a platform for countries to exchange knowledge and lessons as they prepare project proposals in order to secure financing, in particular in the context of the Green Climate Fund (GCF).

Specifically, the collaboration platform links GCF National Designated Authorities, GCF Direct Access Entities, water ministries and agencies, regional institutions, climate and development financiers, private sector organisations and other entities. Together, these partners are committed to enabling countries to access the technical and financial support they need to prepare and implement climate-resilient water projects efficiently and effectively, while specifically building embedded capacity within mandated country institutions. Altogether, 42 countries participated in project preparation workshops, initiating the process of developing 74 climate resilience-building water project ideas into project concepts to submit to the Green Climate Fund. Greater understanding of the funding opportunities, processes and criteria applied by the GCF, as well as the opportunities for support covered in the workshops, will help alleviate a first barrier in accessing funds for financing water-related adaptation actions. In order to grow and leverage this capacity at potential, GWP will facilitate ongoing exchange, learning, and collaboration.

¹² NCE, 2015

Where to focus: collaboration for the climate and water communities – some examples

To address the appetite–design gap for water-related adaptation action, there are a number of areas (to start with, not exhaustive by any means) where the water community needs to actively engage with the climate community in countries to ensure that the priority actions on water infrastructure, institutions, and information systems laid out in NDCs can be implemented.

1. Past hydrological models are no longer accurate guides. There is now widespread consensus among hydrologists and other scientists that we have entered an era of “non-stationarity”. That is, past hydrologic models are no longer accurate guides to the formulation of water policy, such as yearly availability projections and drought and flood frequency. One important metric of a country’s adaptation capability is the extent to which climate change scenarios have been factored into existing hydrological projections. This is not easy to do because it is still very difficult to go from general warning about hydrologic impacts to usable models at the basin or smaller scale. Nonetheless, it is important that countries use the best available science to factor climate change into the hydrology used in allocating water and planning new infrastructure.

2. Effective water allocation and sharing systems are a necessary element of adaptation. Water allocation and sharing is the third rail of climate change adaptation in the water sector. As water availability becomes more variable and less predictable, and extreme events become more frequent and intense, countries will time and again face periods of water shortage, and for longer periods of time. Without an effective system of water entitlements and clear rules about sharing water in times of shortage, including permanent decreases in available water to meet existing and projected uses, there can be no meaningful adaptation. Governments should put in place robust water allocation policies and plans that establish the full value of water, protect the poor as well as ecosystems, and factor in population growth and a changing climate.¹³ National, sub-national and basin wide adaptation plans need to consider, and where relevant, prioritise this foundational issue.

3. Don’t forget transboundary rivers and aquifers.

Many nations depend in part on water from transboundary rivers and aquifers. However, almost all existing transboundary allocation and management regimes are not set up to take into account the coming climate variabilities. Most allocation regimes were premised on outdated hydrology but have no mechanism to adjust entitlements in the short or long term. Climate change demands data sharing among countries in the region or basin to be able to effectively use decision-support systems, especially in this era of non-stationarity. Operation of infrastructure on shared rivers and aquifers needs to be coordinated across national borders, to maximise the adaptation opportunities existing in the system and to avoid unintended maladaptive consequences. Climate change adaptation requires extensive cooperation among riparian states to manage rivers and aquifers impacted by climate changes; the added adaptation benefits of transboundary cooperation and the risks of inaction need to be laid out in a way that drives demand for cooperation at the highest political levels.

4. Place disaster risk reduction (DRR) at the heart of adaptation action.

Data on investment in DRR and managing variability over the last century in the United States and more recently in China and in post WWII Japan show that while overall damages due to disasters might be increasing, damages as a percentage of GDP are decreasing. It is the impairment to human activity, and the capacity of social systems to function and recover from stress and not the number of trigger events that is critical. The ability of people and societies to maintain function and recover from stress depend on investments in information systems, infrastructure, and governance and management instruments for managing uncertain natural events and their variability, especially floods and droughts, which in turn, are investments in DRR. Investments in DRR are central not only for climate resilience, but for creating the stability to attract the capital flows necessary to build the platforms for socio-economic development. Governments and regional organisations should promote tailored policy packages to reduce exposure, minimise losses from natural disasters, and increase resilience, at least cost.¹⁴

¹³ NCE, 2018.

¹⁴ NCE, 2018.

Conclusion

Addressing the impacts of climate change means working on water. Our emerging analysis indicates that 9 out of 10 countries prioritise action on water for adaptation in their NDCs. But are countries on the right track – and do they take the best route towards ensuring secure water? Even without climate change, the world is not moving at the pace needed to ensure water is secure and sustainably managed, slowing down development. Investments in infrastructure and in the sector's management, institutions and regulatory environments are needed urgently, and they should go hand in hand.

The good news is that most countries prioritise some form of water management and institution building. However, only just over a third of countries make explicit reference to *integrated* water resources management in their NDCs. Taking an integrated approach is critical to be able to manage successfully the multiple and overlying dynamics involved in the sector: the need for infrastructure, information, and institutions; actions at project, community, national, river basin, and global levels; the challenge of balancing and sequencing institutional and infrastructure investments; and trade-offs in balancing equity, environmental, and economic priorities. All of these are complex already – now having to move swiftly to adapt to a changing climate will put additional pressure on stakeholders to be flexible, to take on leadership and accountability, and to collaborate. More analysis is required to unpack the rationale behind countries' specific decisions in this regard.

There is an interface between climate action and water action that should be managed more purposefully by countries and development partners. On the one hand, the NDC process brings a high level of cross-sectoral integration and links with national planning that will be extraordinarily relevant for improving water resources management going forward, including the management of floods and drought. At the same time, there are mitigation outcomes that come – as co-benefits – with adaptation action in the water sector. The IPCC's Special Report on the Impacts on Global Warming of 1.5°C¹⁵ motivates the urgency of such actions.

Developing sound programme and project designs in order to attract and access financing for water infrastructure and institutions is the next step to take. Many countries seem to have a healthy appetite for mobilising financing across the development community and the private sector. However, in most cases, countries seeking financing have not yet developed a clear view of the specific activities they want to undertake. As countries seek financing internationally, they might want to consider designing interventions that include, as one of the action areas, specific steps towards strengthening management and governance structures for water. Development partners should also take note of this priority area, as in-country capacity for designing and managing relevant projects and programmes may need concerted support.

¹⁵ IPCC, 2018.

Annex 1. Nationally Determined Contributions, the National Adaptation Plans, and the Sustainable Development Goals

Nationally Determined Contributions

After the commencement of the Paris Agreement, country reports which were submitted before the Paris Conference (INDCs – Intended Nationally Determined Contributions) became Nationally Determined Contributions. Together with a new system for reporting on adaptation, these NDCs are central to the Agreement’s implementation. Countries can decide whether to focus adaptation planning into their NDC, and/or use National Adaptation Plans, or National Communications. The NDCs are a powerful framework for laying out priorities for national climate action, with the potential to guide priorities such as building climate resilience and climate-resilient infrastructure. They can be developed into country-level strategies and/or approaches for mobilising finance for climate-resilient infrastructure programmes and projects and for enhancing the necessary policy and regulatory frameworks. The NDCs also provide a basis for an investment plan that integrates climate vulnerability and resilience in the broader context of the Sustainable Development Goals. Identifying the best channels and sources of finance for such investment plans is a priority in many countries.

National Action Plans

The importance of adaptation interventions is emphasised within the text of the Paris Agreement, which includes a call for all countries to engage in national adaptation planning processes. The goal of the National Adaptation Plan process – established under the UNFCCC before the Paris Conference – is for countries to build climate resilience through medium- to long-term planning, and by integrating adaptation considerations into all relevant policies and strategies. While NDCs communicate a country’s contribution to (and/or needs for) dealing with the impacts of climate change, NAPs tie in with domestic planning processes that allow a country to identify, address, and review their evolving adaptation needs.

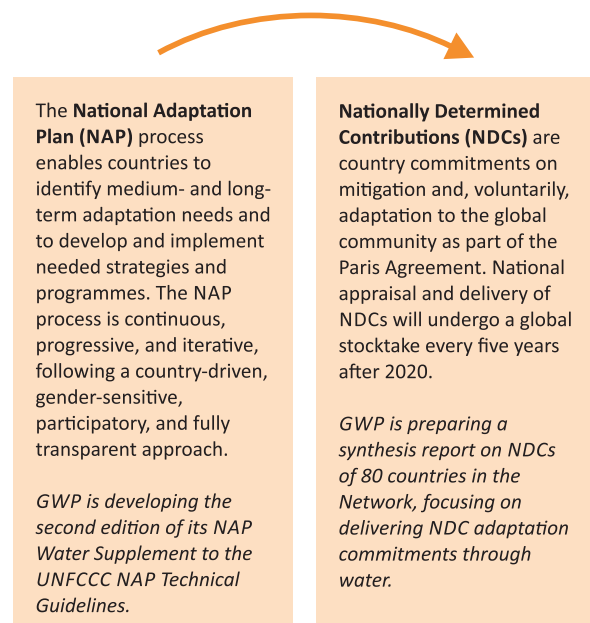
Relationship between Nationally Determined Contributions, National Action Plans, and the Sustainable Development Goals

The NDCs and NAPs can be mutually reinforcing: an NDC can set out the high-level vision, objectives and needs a country hopes to address through its adaptation effort, while a NAP as a country-driven, national-level process integrates adaptation into

planning processes and implements priorities set out in the NDC. The relationship between the two policy instruments can take on a number of forms: the NDC adaptation component can be seen as an opportunity for highlighting priorities and goals contained in the NAP; the NDC can build on a NAP planning process and its future iterations; or NAPs can become a vehicle of the NDC adaptation component, for example by mainstreaming adaptation into budgets and planning. However, it should also be noted that NDCs and NAPs are just two of the many vehicles countries can use to submit their adaptation communications under the UNFCCC (GIZ, 2016).

Delivering on NDCs and NAPs will help countries achieve their SDGs, and achieving the SDGs will facilitate countries’ efforts to mitigate and adapt to climate change (Hamill and Price-Kelly, 2017). As such, there is a high level of alignment of SDG targets and ambitions in INDCs, as found in a 2016 analysis (Northrop et al., 2016). However, tensions and trade-offs may exist between different agendas, for example, between bioenergy and food production (SDG 2), or between flood protection and coastal wetland conservation (SDG 15).

Source: Adapted from UNDP/NDC; GIZ, 2016; Hamill and Price-Kelly, 2017; Northrop et al., 2016



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80 countries covered in NDC analysis

Algeria
Angola
Argentina
Armenia
Azerbaijan
Bahamas
Bangladesh
Barbados
Bhutan
Bolivia
Botswana
Brazil
Burundi
Central African Republic
Cambodia
Cape Verde
Chad
Chile
China
Colombia
Costa Rica
Dominica
Dominican Republic
Ecuador
Egypt
Eritrea
eSwatini
Ethiopia
Georgia
Ghana
Grenada
Guinea
Guinea Bissau
Guyana
India
Indonesia
Jamaica
Jordan
Kenya
Kyrgyzstan
Lao People's Democratic Republic
Lebanon
Lesotho
Liberia
Malawi
Malaysia
Mauritius
Moldova
Mongolia
Morocco
Myanmar
Namibia
Nepal
Niger
Nigeria
Peru
Philippines
São Tomé and Príncipe
Sierra Leone
Somalia
South Africa
Sri Lanka
St Kitts and Nevis
St Lucia
St Vincent and the Grenadines
Sudan
Suriname
Tajikistan
Tanzania
Thailand
The Gambia
Togo
Tunisia
Turkmenistan
Uganda
Ukraine
Uruguay
Vietnam
Zambia
Zimbabwe